

### Introduction

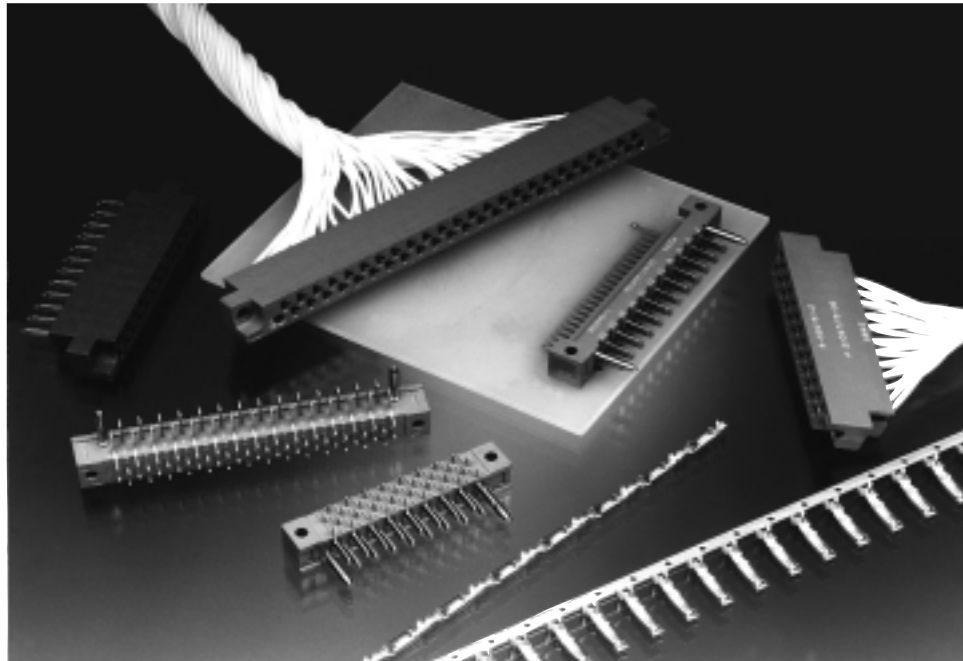
#### Product Facts

##### AMP-BLADE II Connectors

- Selective gold plating for economy with high performance
- Glass-filled polyester housing

##### AMP-BLADE and Military Connectors

- Full gold plating
- Diallyl phthalate housing rated from -65°C to 125°C
- 5 amps per contact
- Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476



Various technical documents are available for your use:

**Product Specifications** describe technical performance characteristics and verification tests. They are intended for the Design, Component and Quality Engineer.

108-9004 Diallyl Phthalate

108-9009 Phenolic

108-9201 Contact Crimp

**Instruction Sheets** provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

Instructional material covering operation, setup, maintenance, repair, etc. is included with each machine, tool or die set. If this material is required prior to receiving your tooling, contact Technical Support for the applicable document.

#### Electrical Characteristics

**Contact Rating** — 5 amps

**Operating Temperature** — -65° to 125° C (Military)

For applications requiring the highest level of conductivity and reliability, AMP-BLADE Two-Piece Printed Circuit Edge Connectors meet all applicable performance requirements of MIL-C-21097.

The blade and receptacle design provides multiple areas of contact for maximum conductivity. Gold-over-nickel plating in mating areas of the contacts prevents metal migration and oxide build-up for additional reliability. Controlled insertion and extraction forces permit easy mating and unmating of connector assemblies.

A guide system helps prevent contact damage and provides positive alignment for reliable mating of connector halves.

The receptacle half of this two-piece connector accepts a variety of contact designs, but requires only that number of contacts which fulfills circuitry needs.

Crimp snap-in contacts are available in loose-piece or, to further reduce installed costs, in strip form for application by high-speed, automatic compression-crimping equipment.

Post-type contacts are specifically designed for wiring AMP TERMI-POINT clips and tools. The connectors with post-type contacts also adapt to wrap-type terminations.

The split eyelet contact simplifies bus wiring by permitting wire to be easily snapped into the contact notch for soldering. Each contact accepts up to two 18 AWG [0.8 to 0.9 mm<sup>2</sup>] stranded or 16 AWG [1.25 to 1.4 mm<sup>2</sup>] solid wires.

High reliability, versatility and speed of assembly are features which recommend the AMP-BLADE Two-Piece Printed Circuit Edge Connectors for dense wiring in applications where rugged serviceability is a prime consideration.

#### Construction

**Contact Material** — Phosphor bronze per QQ-B-750

**Contact Plating** —

**Gold plate** — MIL-G-45204;

**Nickel plate** — QQ-N-290 (thickness as specified); Tin-lead per MIL-T-10727, Type 1, on solder tails

**Contact Identification** —

Cavities identified on both faces of receptacle block

#### Performance

This connector meets performance requirements of MIL-C-21097

Altitude	Test Voltage (AC RMS)
Sea level	1,800 VAC
50,000 feet 15,240 m	700 VAC
70,000 feet 21,336 m	500 VAC

#### Individual-Contact Engaging and Separating Forces —

2 ounces to 16 ounces [0.6 N to 4.5 N]

**Contact Resistance** —

25 millivolts maximum at 5 amps

**Vibration Tolerance** —

10 to 2,000 hz. @ 15Gs per method 204B of MIL STD 202

**Durability** —

Gold Thickness	Cycles
.000015 0.00038	100
.000030 0.00076	250
.000050 0.00127	500

### Board Half Housing Pre-loaded with Blade Type Contacts

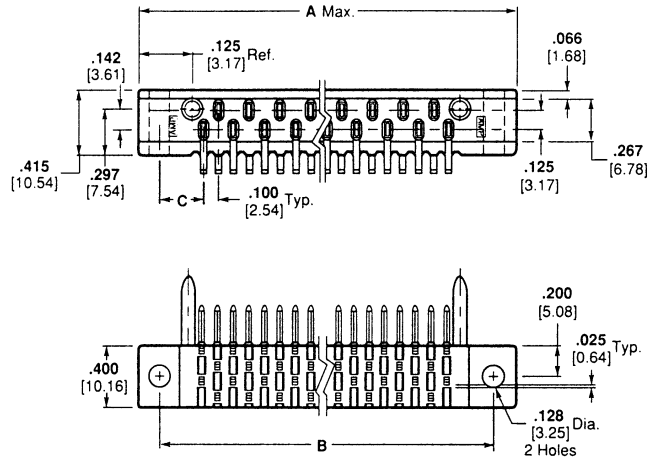
#### Housing with Mounting Holes

#### Materials:

**Housing** — Diallyl phthalate

**Blade Contact** — Gilding metal

**Finish** — Selective gold plating in contact mating area over .000030 [0.00076] min. nickel. See table for gold thicknesses



No. of Positions	A (Max.)	B	C	Printed Circuit Board Thickness	Commercial Type		Military Type CS	
					Diallyl Phthalate Housing		Diallyl Phthalate Housing	
					.000015 [0.00030]	.000030 [0.00076]	Military Part No. Gold Plating Thickness .000050 [0.00127]	Part No.
17	2.390 60.70	2.130 54.10	.265 6.73	.063 1.59	1-582390-1	3-582152-1	21097/14-01	582843-2
				.094 2.38	—	—	21097/14-02	1-582843-4
				.125 3.18	—	—	21097/14-03	2-582843-5
23	2.990 54.10	2.730 69.34	.265 6.73	.063 1.59	—	3-582152-2	21097/14-04	582843-3
				.094 2.38	—	—	21097/14-05	582843-1
				.125 3.18	—	—	21097/14-06	2-582843-6
29	3.590 91.19	3.330 84.58	.265 6.73	.063 1.59	1-582390-3	3-582152-3	21097/14-07	582843-4
				.094 2.38	2-582390-3	—	21097/14-08	1-582843-5
				.125 3.18	—	—	21097/14-10	582843-5
35	4.190 106.43	3.930 99.82	.265 6.73	.063 1.59	1-582390-4	3-582152-4	21097/14-10	582843-5
				.094 2.38	2-582390-4	6-582152-4	21097/14-11	1-582843-6
				.125 3.18	—	—	21097/14-12	2-582843-8
41	4.790 121.67	4.530 115.06	.265 6.73	.063 1.59	1-582390-5	3-582152-5	21097/14-13	582843-6
				.094 2.38	—	6-582152-5	21097/14-14	1-582843-7
				.125 3.18	3-582390-5	9-582152-5	—	—
47	5.623 142.82	5.363 136.22	.381 9.68	.063 1.59	—	3-582308-1	21097/14-16	582843-7
				.094 2.38	2-582390-6	6-582308-1	21097/14-17	1-582843-8
				.125 4.65	3-582390-6	—	21097/14-18	3-582843-0

#### Notes:

- AMP-BLADE contacts (gold plated) are molded into housing in predetermined positions to mate with receptacle housing.
- Connectors can be furnished with the two middle rows of lines removed to fit existing board hole patterns.

### Board Half Housing Pre-loaded with Blade Type Contacts (Continued)

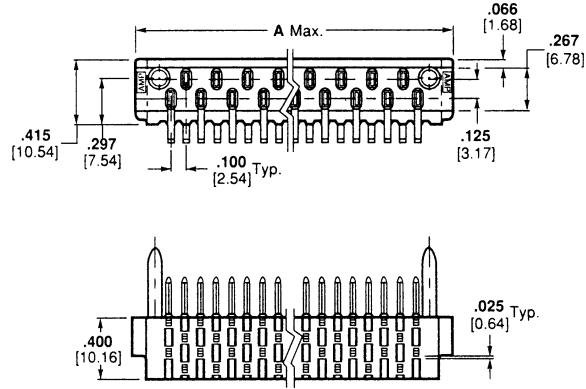
#### Housing without Mounting Holes

#### Materials:

**Housing** — Diallyl phthalate

**Blade Contact** — Gilding material

**Finish** — Selective gold plating in contact mating area over .000030 [0.00076] min. nickel. See table for gold thicknesses



No. of Positions	A (Max.)	Printed Circuit Board Thickness	Military Type CS	
			Military Part No. Gold Plating Thickness .000050 [0.00127]	Part No.
17	2.070 52.58	.125 3.18	21097/15-03	—
		.063 1.59	21097/15-04	582843-9
23	2.670 67.80	.094 2.38	21097/15-05	2-582843-0
		.125 3.18	21097/15-06	3-582843-2
		.063 1.59	21097/15-10	1-582843-1
35	3.870 98.30	.094 2.38	21097/15-11	2-582843-2
		.063 1.59	21097/15-13	1-582843-2
41	4.470 113.54	.094 2.38	21097/15-14	2-582843-3
		.063 1.59	21097/15-16	1-582843-3
47	5.070 128.80	.125 3.18	21097/15-18	3-582843-6

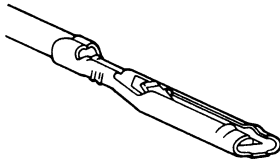
#### Notes:

- AMP-BLADE contacts (gold plated) are molded into housing in predetermined positions to mate with receptacle housing.
- Connectors can be furnished with the two middle rows of lines removed to fit existing board hole patterns.

4  
Printed Circuit Board Connectors

### AMP-BLADE Connector Snap-in Receptacle Contacts

#### Crimp, Snap-in Receptacle Contacts



#### Materials:

**Contact** — Phosphor bronze

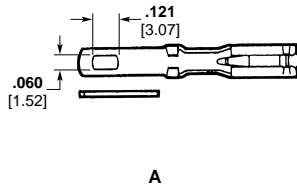
**Finish** — Selective gold plating in contact mating area over .000030 [0.00076] nickel, see table for gold thicknesses

Wire (Insulation) Ranges	Gold Plate Thickness	Side Feed Contact Part Number	
		Strip Form	Loose Piece*
<b>24-20 AWG</b> 0.2-0.5 mm <sup>2</sup> (.040-.080) (1.02-2.03)	.000030 0.00076	531586-3	531586-6
	.000050 0.00127	531586-4	—
<b>28-24 AWG</b> 0.09-0.2 mm <sup>2</sup> (.030-.060) (0.76-1.52)	.000030 0.00076	531587-3	531587-6
<b>1: 18 AWG</b> 0.8-0.9 mm <sup>2</sup> or <b>2: 20 or 22 AWG</b> 0.3-0.6 mm <sup>2</sup> (.067-.090) (1.70-2.28)	.000015 0.00038	—	—
		.000030 0.00076	531589-3 531589-6

\*See page 406 for crimping tool.

Wire Range AWG	Insulation mm <sup>2</sup>	Insulation Range	Commercial Type		Military Type		
			End Feed Strip Part No.	Loose Piece Part No.	Military Part No.	End Feed Strip Part No.	Loose Piece Part No.
			.000030 [0.00076] Gold Over .000030 [0.00076] Nickel		.000050 [0.00127] Gold Over .000030 [0.00076] Nickel		
24-20	0.2-0.6	.040-.080 1.02-2.03	66005-2	66010-2	21097/16-03	66005-3	66010-3
28-24	0.08-0.2	.030-.060 0.76-1.52	—	66011-2	21097/16-01	66009-3	66011-3
(2)20 or (2)22	0.183 or 0.643	(2).045 to (2)1.14 (2).072 to (2)1.83	66021-2	66026-2	21097/16-04	66021-3	66026-3
18	0.8	.067-.090 1.70-2.29	66021-2	66026-2	21097/16-04	66021-3	66026-3
28-24	0.08-0.2	.078 1.98	66027-2	—	21097/16-02	66027-3	—

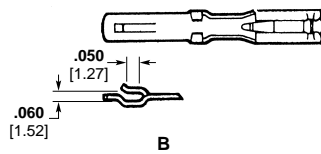
#### Solder—Tab Receptacle Contacts



A

#### Materials:

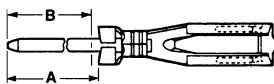
**Contact** — Phosphor bronze



B

Type	Maximum Extension Beyond Back Face of Block	Part Numbers—Loose Piece	
		Commercial Type	Gold Plate Thickness .000030 [0.00076] over .000030 [0.00076] Nickel
A	.390 9.91	66086-2	—
B	.375 9.52	66086-4	—

#### Post-Type Receptacle Contacts



#### Materials:

**Contact** — Phosphor bronze

**Finish** — Selective gold plating in contact mating area over .000030 [0.00076] nickel, (see table for gold thicknesses); posts, tin plated

Dimensions		Gold Plate Thickness	Part Numbers - Loose Piece	
A	B*		.031 x .062 [0.79 x .157] Posts	.045 x .045 [1.14 x 1.14] Posts
<b>.410</b> 10.41	<b>.370</b> 9.40	.000015 0.00038	582652-1	—
		.000030 0.00076	1-582261-1	1-582364-1
<b>.640</b> 16.26	<b>.600</b> 15.24	.000015 0.00038	582652-2	—
		.000030 0.00076	1-582261-2	1-582364-2
<b>.810</b> 20.57	<b>.770</b> 19.56	.000015 0.00038	582652-3	—
		.000030 0.00076	1-582261-3	1-582364-3
<b>1.040</b> 26.42	<b>1.000</b> 25.4	.000015 0.00038	582652-4	—
		.000030 0.00076	1-582261-4	1-582364-4

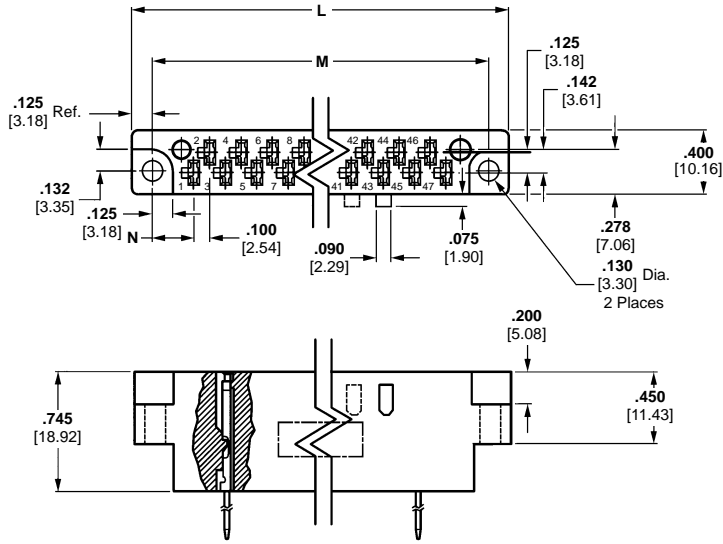
\*Post length after inserted into housing.

### Wire-Half Assemblies and Housings

Pre-loaded Assemblies  
for Crimp Contacts,  
TERMI-POINT Clip or  
Wrap-Type Post Contacts,  
Solder/Weld Contacts

**Materials:**

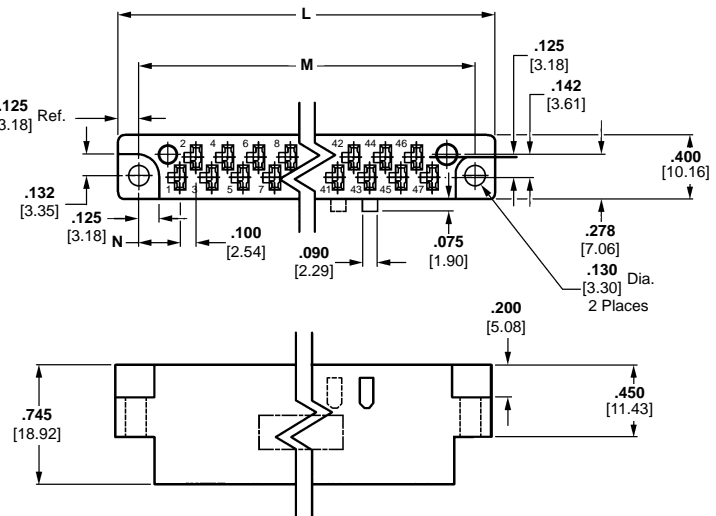
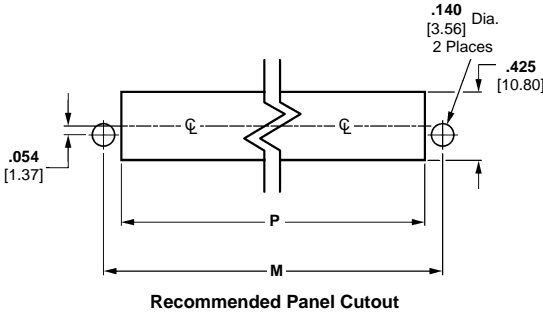
- Housing** — Diallyl phthalate glass-filled polyester, green
- Contact** — Phosphor bronze
- Posts** — Brass, tin plated



### Receptacle Housing

**Material:**

Diallyl phthalate



No. of Pos.	Post	Length	No. of Clip or Wrap Type Terminations	Dimensions			Cutout Dim. for Mounting P	Diallyl Phthalate			
				L	M	N		Preloaded Housing Part No.			
								Commercial Type Part No.	Military Type Part No.	Part No.	
17	.370	9.40	1	2.390 60.71	2.130 54.10	.265 6.73	1.910 48.51	582828-4	3-582151-1	21097/13-01	5-582151-1
23	.770	19.65	3	2.990 75.95	2.730 69.34	.265 6.73	2.510 63.75	—	3-582151-2	21097/13-02	5-582151-2
29	1.000	25.40	4	3.590 91.19	3.330 84.58	.265 6.73	3.110 78.99	582830-1	3-582151-3	21097/13-03	5-582151-3
	.770	19.65	3					582830-2			
	.370	9.40	1					—			
35	1.000	25.40	4	4.190 106.43	3.930 99.82	.265 6.73	3.710 94.23	582831-1	3-582151-4	21097/13-04	5-582151-4
	.770	19.65	3					—			
	.600	15.24	2					—			
	.370	9.40	1					582831-4			
41	.770	19.65	3	4.790 121.67	4.530 115.06	.265 6.73	4.310 109.47	—	3-582151-5	21097/13-05	5-582151-5
	.600	15.24	2					—			
	.370	9.40	1					582832-4			
47	1.000	25.40	4	5.623 142.82	5.363 136.22	.381 9.68	5.143 130.63	582819-1	3-582307-1	21097/13-06	5-582307-1
	.770	19.65	3					582819-2			
	.600	15.24	2					—			
	.370	9.40	1					—			

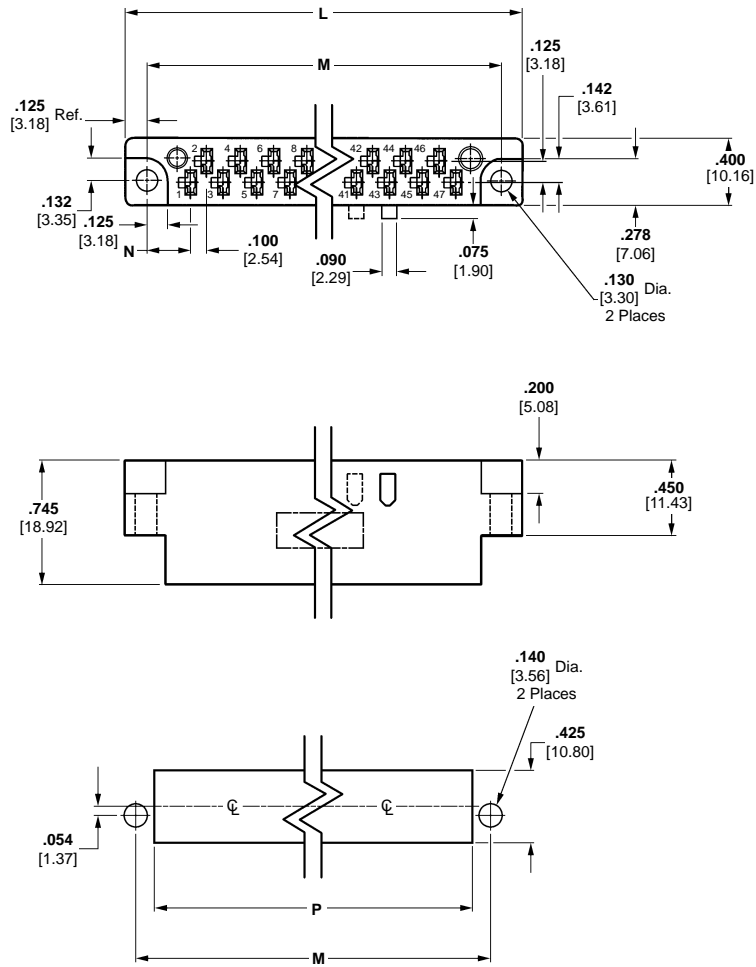
### Receptacle Housings for Crimp Snap-in Contacts

**Material:**

Glass-filled polyester, green

**Related Product Data:**

Contact Part Numbers — page 402

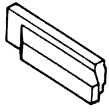


Recommended Panel Cutout

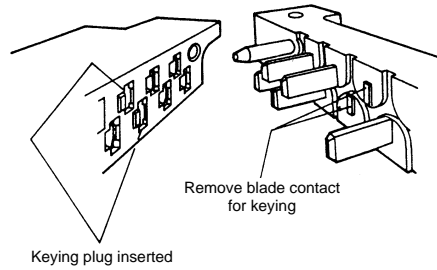
No. of Pos.	Dimensions				AMP Part Number
	L	M	N	P	
17	2.390 60.71	2.130 54.10	.265 6.73	1.910 48.51	531590-1
23	2.990 75.95	2.730 69.34	.265 6.73	2.510 63.75	531590-2
29	3.590 91.19	3.330 84.58	.265 6.73	3.110 78.99	531590-3
35	4.190 106.43	3.930 99.82	.265 6.73	3.710 94.23	531590-4
41	4.790 121.67	4.530 115.06	.265 6.73	4.310 109.47	531590-5
47	5.623 142.82	5.363 136.22	.381 9.68	5.143 130.63	531590-6

### AMP-BLADE Connector Keying

#### Keying Plugs



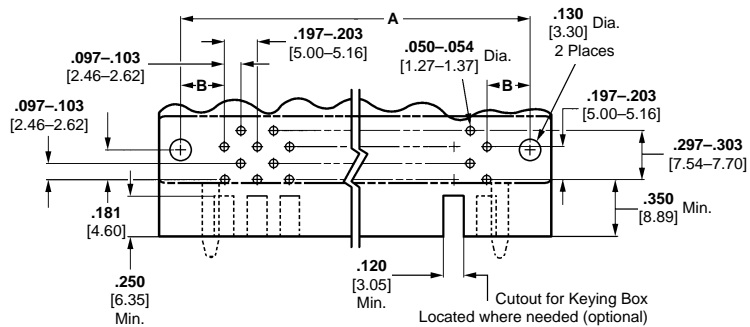
Keying Plug — Nylon  
Part Number 1-582156-9  
Military Part Number 21097/11-07



Keying of the connector can be achieved by plugging receptacle cavities. Insert keying plug into mating side of receptacle housing cavity. Remove corresponding blade contact from blade housing using tool number 811145.

#### Printed Circuit Board Layout

No. of Pos.	Dimensions	
	A	B
17	2.130 54.10	.265 6.73
23	2.730 69.34	.265 6.73
29	3.330 84.58	.265 6.73
35	3.930 99.82	.265 6.73
41	4.530 115.06	.265 6.73
47	5.363 136.22	.381 9.68



**Note:** If existing printed circuit board layout does not include the two middle rows of holes, Tyco Electronics can supply the connector with the middle rows of tines removed.

### Application Tooling

#### AMP-O-LECTRIC Machine

Substantial savings and the benefits of mass production are obtained with the AMP-BLADE Printed Circuit Connector through the use of AMP automatic machines. The AMP-BLADE receptacle contacts are available in strip form for this use (see table on AMP-BLADE receptacle contacts) and can be terminated to wire leads at rates up to 1500 per hour, depending on operator skill. Contact Tyco Electronics for complete specifications and part numbers.



#### Extraction Tool



**Receptacle Contact  
Extraction Tool**  
Part Number 465199-1  
Military Part Number M21097/18-01

#### Hand Crimping Tools



Hand Tool Part Number	Loose-Piece Receptacle Contact Part Number	Wire Combinations
91555-1	66010	One 24, one 22 or one 20
	531586	
59524-1	66010	Two 24 or two 22
	66011	One 22 or one 20
	531587	One 26 or one 24
59525-1	66026	One 28, one 26 or one 24
	531589	Two 22 or two 20
90005-1	66026	Two 20, one 18 or one 20
	531589	Two 22 or three 22